

CALIFORNIA REGIONAL WATER QUALITY CONTROL REGIONAL BOARD
CENTRAL VALLEY REGION

ORDER NO. ____

WASTE DISCHARGE REQUIREMENTS

FOR
LAKE COUNTY SANITATION DISTRICT
KELSEYVILLE COUNTY WATER WORKS DISTRICT NO. 3
WASTEWATER TREATMENT FACILITY
LAKE COUNTY

The California Regional Water Quality Control Regional Board, Central Valley Region, (hereafter Regional Water Board) finds that:

1. On 4 December 2006, Lake County Sanitation District submitted a Report of Waste Discharge (RWD) for upgrades to Kelseyville County Water Works District No. 3's existing wastewater treatment facility (WWTF), which serves the town of Kelseyville. Additional information was received from the Discharger on 16 May 2008, and various dates in October and November 2008.
2. Kelseyville County Water Works District No. 3 owns the Kelseyville WWTF. The Board of Directors is the governing body of Kelseyville Water Works District No. 3. Lake County Sanitation District (hereafter "Discharger") operates the WWTF on behalf of Kelseyville County Water Works District No. 3 and is responsible for compliance with these waste discharge requirements (WDRs).
3. The Kelseyville WWTF includes a sanitary sewer system, wastewater treatment plant, and remote percolation/evaporation (P/E) ponds. The treatment plant is at 4395 Gaddy Lane in Kelseyville in (Section 11, T13N, R9W, MDB&M). The P/E ponds are on the western slope of Mt. Konocti in Section 13, T13N, R9W, MDB&M. The treatment plant and P/E ponds site occupy Assessor's Parcel Numbers (APNs) 008-039-06, 008-054-11, 008-054-12, 008-054-13, and 008-054-18. The WWTF location is shown on Attachment A, which is attached hereto and made part of this Order by reference.
4. WDRs Order No. 99-094, adopted by the Regional Water Board on 11 June 1999, prescribes requirements for the WWTF. Order No. 99-094 allows an average dry weather flow of up to 0.26 million gallons per day (mgd) and envisions that up to 5 million gallons (MG) per year of treated effluent will be recycled at a 5-acre vineyard owned and operated by Michael Fowler. The vineyard is adjacent to the P/E pond site in Section 19, T13N, R8W, MDB&M (APN 009-003-09). The recycled water discharge is regulated under separate WDRs (Order No. 99-070).
5. The Discharger proposes to upgrade the WWTF to improve the treatment system and increase effluent storage/disposal capacity to comply with Cease and Desist Order (CDO) No. R5-2005-0007. Therefore, Order No. 99-094 will be rescinded and replaced with this Order.

Existing Facility and Discharge

6. The existing WWTF serves approximately 3,800 residents (1,297 single family dwelling units) of Kelseyville County Water Works District No. 3, Corinthian Bay, and Clear Lake State Park. The following table summarizes recent influent flow rates.

Calendar Year	Total Annual Influent Flow (MG)	Average Annual Flow (mgd)	Average Dry Weather Flow ¹ (mgd)	Peak Month Flow ² (mgd)
2004	95	0.26	0.20	0.45
2005	99	0.27	0.21	0.35
2006	90	0.25	0.18	0.41
2007	76	0.21	0.20	0.29
2008	NA	NA	NA	0.32

NA Data not yet available.

¹ Average daily flow for the months of August, September, and October, which consistently exhibit the lowest flows.

² Typically occurs in February or March.

Comparison of the daily dry weather flows and the peak month daily flow indicates that inflow and infiltration (I/I) contributes significantly to influent flows during the rainy season.

7. The sewer system consists of approximately 15 miles of gravity pipe and 6 miles of force main. Seven pump stations (PS-1, PS-2, PS-3, PS-4, PS-6, PS-7, and the State Park pump station) convey raw sewage from the gravity sewers through three separate force mains (the Kelseyville, Corinthian, and State Park force mains) to an 840-gallon concrete collection box on the southeast side of the treatment plant. The flow from each force main is individually metered to monitor the total influent flow to the treatment plant. Each of the District's pump stations has an alarm system with an autodialer to alert operations staff of power failures and high liquid levels. Portable generators are available to provide backup power to the pumps when needed.
8. The collection box has sluice gates to divide the influent flow between three aerated stabilization ponds if desired. However, the three treatment ponds are usually operated in series with Pond 1 receiving the raw sewage. Attachment B, which is attached hereto and made part of this Order by reference, is a site plan for the treatment plant.
9. Pond 1 is operated as an aerated facultative pond, and Ponds 2 and 3 are operated as aerated stabilization ponds. A fourth pond (Pond 4) functions as a clear well for the effluent pumping station. Design data for the existing treatment plant ponds are summarized below.

Pond Name	Surface Area (acres)	Volume ¹ (MG)	Depth ² (feet)
1	2.75	4.3	3.5
2	3.72	5.9	3.5
3	3.85	5.8	3.5
4	0.91	1.1	3.5

¹ Total volume at two feet freeboard.

² Design operating depth with two feet of freeboard.

10. Sodium hypochlorite solution is injected into the treated effluent at the filter screen guide channel just upstream of the effluent pump vault. Contact is achieved within the 13,000-foot force main as the effluent is pumped to the P/E pond site for disposal.
11. Per the California Department of Public Health (CDPH), disinfection is not required to comply with the Title 22 water recycling requirements set forth in WDRs Order No. 99-070 for the crops being irrigated with reclaimed water, but the Discharger has been disinfecting the treated effluent for several years. According to the 1988 WWTF Operation and Maintenance Manual, the disinfection system is designed to reduce total coliform organisms to 23 MPN/100 mL as a 30-day median and 500 MPN/100 mL as a daily maximum if the contact time is 25 minutes or more at the design influent flow rate of 0.26 mgd. The Operation and Maintenance Manual recommends that the residual chlorine concentration be between 0.2 and 1.0 mg/L after 15 to 30 minutes of contact time, and that the chlorine dose rate should be adjusted based on monitoring data. The Discharger does not monitor the effluent for total coliform organisms, so the level of disinfection currently achieved is not known.
12. The seven P/E ponds, which are approximately 525 feet above treatment plant, are shown on Attachment C, which is attached hereto and made part of this Order by reference. Design data for the P/E ponds are summarized below.

Pond Name	Surface Area ¹ (acres)	Volume ¹ (MG)	Depth ¹ (feet)
H-1	1.10	1.28	3.9
H-2	1.53	1.81	3.9
H-3	1.39	1.48	3.5
H-4	1.23	1.31	3.5
G-1	1.07	1.13	3.5
G-2	1.29	1.36	3.5
G-3	1.25	1.32	3.5

¹ At two feet of freeboard.

13. The effluent pump station has two pumps with a design capacity of 290 gallons per minute (gpm) each, or 580 gpm (0.835 mgd) total. The 13,000-foot effluent pipeline from the treatment plant to the remote P/E pond site is 6-inch diameter ductile iron and asbestos cement. Due to deterioration of the effluent pumps and pipeline, the current capacity of the effluent pumping system is approximately 0.47 mgd, which is less than the current peak day flow of 0.78 mgd and only slightly greater than the current peak month flow of 0.45 mgd.
14. The effluent pump station has automated controls and an alarm system to warn operators of power failure. An emergency standby generator is available in case of power failure.
15. The treatment plant has duplex units or spare parts for critical mechanical components, and a control system to monitor equipment status and performance. The control system includes an autodialer to alert plant operators of mechanical problems.
16. The Discharger regularly monitors treated effluent for pH, electrical conductivity (EC), biochemical oxygen demand (BOD), and settleable solids (SS). Effluent monitoring data for these parameters for January 2006 through July 2008 are summarized below.

Parameter	Units	Treated Effluent Results		
		Minimum	Maximum	Mean
pH	std.	6.0	10.2	8.3
EC	umhos/cm	325	905	606
BOD	mg/L	10	57	28
Settleable solids	ml/L	<0.1	0.1	<0.1

17. In October and November of 2007, three samples of undisinfected effluent were submitted for additional analyses to support the Report of Waste Discharge. Analytical results for those samples are summarized below.

Parameter	Units	Treated Effluent Results		
		Minimum	Maximum	Mean
Total coliform organisms ¹	MPN/100 mL	7,000	250,000	93,000
Fecal coliform organisms ¹	MPN/100 mL	1,600	14,000	6,400
Total nitrogen	mg/L	14	20	16.3
Total Kjeldahl nitrogen	mg/L	13	18	14.7
Nitrate+nitrite nitrogen	mg/L	1.5	2.4	2.0
Boron	mg/L	--	0.5	² --
Calcium	mg/L	--	29	² --
Iron	mg/L	--	<0.1	² --
Magnesium	mg/L	--	39	² --

Parameter	Units	Treated Effluent Results		
		Minimum	Maximum	Mean
Manganese	mg/L	--	0.071	² --
Potassium	mg/L	--	19	² --
Sodium	mg/L	--	73	² --
Chloride	mg/L	--	64	² --
Total Alkalinity ³	mg/L	--	240	² --
Hardness as CaCO ₃	mg/L	--	234	² --

-- Not analyzed.

¹ Samples were obtained at effluent pumping station before sodium hypochlorite was injected.

² Results are for a single sample obtained on 17 October 2007.

³ Bicarbonate alkalinity result was 230 mg/L or 96% of total alkalinity.

18. Order No. 99-094 prescribes a minimum pond freeboard of one foot. Beginning in 2001, the WWTF began to have capacity problems as a result of excessive inflow and infiltration (I/I). This led to numerous freeboard violations between February 2001 and April 2004. The Discharger prevented overtopping by placing sandbags around some of the treatment plant and P/E ponds to effectively raise the berm height.
19. In January 2005, the Regional Water Board adopted CDO No. R5-2005-0007 to require the Discharger to address the capacity issue and other violations of the WDRs¹. The CDO requires that the Discharger do the following:
 - a. Implement a spill contingency plan until long-term improvements have been completed;
 - b. Submit an I/I Assessment Report;
 - c. Submit a Wastewater Master Plan detailing proposed improvements to address the capacity problem and other violations;
 - d. Submit a Sewer System Operation, Maintenance, Overflow Prevention and Response Plan;
 - e. Submit a Revenue Plan and schedule for acquiring funding for the required improvements;
 - f. Submit a Report of Waste Discharge to apply for revised WDRs; and
 - g. Install groundwater monitoring wells.

Some of the required reports were submitted late and the original RWD was incomplete, but the Discharger has otherwise complied with the CDO.

¹ The other violations include low dissolved oxygen concentrations in the ponds, high pH, a 270-gallon sanitary sewer overflow, and failure to monitor groundwater.

20. I/I is a significant problem that creates peak wet weather flows that greatly exceed both the treatment capacity and the capacity of the lift station/pipeline that conveys treated effluent to the P/E pond system. The Discharger has undertaken an I/I reduction program. The effectiveness of I/I reduction measures completed to date is not known because the last two winters have been dryer than normal. Freeboard has not been a problem at the treatment plant during the last two relatively dry winters, but both treatment and P/E pond levels were critically high (less than six inches of freeboard) during the wet winter of 2005/2006. The Discharger plans to continue its I/I reduction efforts and increase pond management activities.
21. As noted above, the Discharger has determined that the storage and disposal capacity deficit is partly due to deterioration of the effluent lift station pumps and the effluent pipeline. The current actual pumping capacity of the system is estimated to be 0.47mgd, as opposed to the 0.835 mgd design capacity.

Planned Changes in Discharge

22. The Discharger plans to upgrade the WWTF to comply with the CDO, and has secured approval for \$3.5 million in loans and grants from the State Water Resources Control Board for this purpose.
23. The improvements project currently planned (known as Phase I) will consist of increasing the effluent lift station capacity to 0.79 mgd; replacing 3,000 feet of effluent pipeline; reconfiguring the treatment ponds; and improving the treatment system to provide full secondary treatment within the footprint of the existing plant. A conceptual site plan for the upgraded treatment plant is shown on Attachment D, which is attached hereto and made part of this Order by reference.
24. Part of Treatment Pond 1 will be converted to an aerated lagoon system with both partially and fully mixed cells separated by baffle curtains. The fully mixed cell will have four 7.5-hp aerators, and the three partially mixed cells will each have one 2-hp aerator. The new treatment lagoon will be lined with 60-mil high density polyethylene (HDPE). The remainder of Pond 1, and Ponds 2 and 3 will serve as effluent storage ponds. Pond 4 will continue to be used as a clear well for the effluent pump station.
25. According to the RWD, Phase I will provide a firm treatment, storage and disposal capacity of 0.30 mgd as an average annual flow, and should accommodate projected growth through 2015, assuming a one percent population growth rate.
26. To accommodate projected flows for 2016 through 2025, the Wastewater Facilities Plan envisions that a second phase (Phase II) will consist of a new headworks system designed to accommodate 0.90 mgd; increasing the effluent lift station capacity again to 0.90 mgd; replacing another 6,400 feet of effluent pipeline; improving the chlorine disinfection system to increase contact time; and increasing the P/E pond system disposal capacity. The scope of the Phase II improvements is not fully defined, so this Order will have to be revised prior to any further expansion.

27. The RWD included a water balance for the both the current and Phase I design flow scenarios to demonstrate adequate treatment, storage and disposal capacity for current demand and anticipated development through approximately 2015. The water balance was prepared based on reasonable estimates of influent flows, I/I, precipitation, and evaporation. The water balance was used to model storage and disposal capacity during the 100-year, 365-day precipitation event with at least two feet of freeboard in every pond. The model indicates that the upgraded WWTF will provide the following capacities:

<u>Condition</u>	<u>Current Capacity</u>	<u>Phase I Capacity</u>
Average daily flow	0.21 mgd	0.31 mgd
Average daily dry weather flow	0.12 mgd	0.22 mgd
Peak month daily flow	0.39 mgd	0.48 mgd

The model shows that the P/E pond percolation rates are critical to the WWTF's effluent disposal capacity. The Discharger has recently completed percolation testing of five of the seven P/E ponds. Based on those tests, the percolation rate was highly variable between the P/E ponds and the average percolation rate was 0.60 inches per day. The RWD states that the Discharger currently scarifies each P/E pond every three to four years on a rotational basis. This schedule may not be adequate to maintain percolation rates high enough to support the proposed Phase I flows. However, the Phase I treatment system improvements may result in reduced organic loading to the P/E ponds, which may reduce the rate of clogging. Additionally, the Discharger states that it may be possible to increase the frequency of scarification to once every two years on average. Because of the uncertainty regarding sustainable P/E percolation rates, it is appropriate to require that the discharger submit and implement a plan to increase the frequency of scarification and re-evaluate percolation rates periodically, and continue its I/I reduction efforts. Because the current WWTF storage/disposal capacity is less than the current flows cited in Finding No. 6, it is also appropriate to limit influent flows rates to the maximum values tabulated in Finding No. 6 until the Phase I project is complete.

28. A previous order, WDRs Order No. 90-149, allowed the Discharger to land apply treated effluent to a 10-acre walnut orchard adjacent to the south side of the P/E ponds (Attachment C). The Discharger stopped using that area for effluent disposal and it was not included in the WDRs Order No. 99-094. The Discharger may wish to begin discharging to the orchard again, but is not prepared to provide sufficient details of the proposed discharge at this time. This Order may be reopened to prescribe requirements for discharges to the orchard if the Discharger submits an amended Report of Waste Discharge that describes the orchard discharge operation and provides a revised water balance capacity analysis.

Wastewater Collection System

29. The sanitary sewer system collects wastewater and consists of sewer pipes, manholes, and/or other conveyance system elements that direct raw sewage to the treatment facility. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the treatment facility. Temporary storage and conveyance facilities (such as wet wells, regulated impoundments, tanks, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage/conveyance facilities. Sanitary sewer overflow is also defined in State Water Resources Control Board (State Water Board) Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*.
30. Sanitary sewer overflows consist of varying mixtures of domestic and commercial wastewater, depending on land uses in the sewage collection system. The chief causes of sanitary sewer overflows include grease blockages, root blockages, debris blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, storm or groundwater inflow/infiltration, lack of capacity, and/or contractor caused blockages.
31. Sanitary sewer overflows often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen demanding organic compounds, oil and grease, and other pollutants. Sanitary sewer overflows can cause temporary exceedance of applicable water quality objectives, pose a threat to public health, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters in the area.
32. The Discharger is expected to take all necessary steps to adequately maintain, operate, and prevent discharges from its sanitary sewer collection system and comply with State Water Board Order No. 2006-0003-DWQ.

Site-Specific Conditions

33. Based on the 2007 Consumer Confidence Report prepared pursuant to Section 116470 of the Health and Safety Code, the chemical character of the municipal water supply, which is obtained from four wells screened within the Kelsey Creek aquifer, is summarized below.

Parameter	Units	Analytical Results	
		Water Supply	Treated Effluent
Total dissolved solids	mg/L	170	--
Electrical conductivity	umhos/cm	300	606 ¹
Total hardness	mg/L	156	--
Boron	ug/L	101.5	500 ²

Parameter	Units	Analytical Results	
		Water Supply	Treated Effluent
Chloride	mg/L	4.5	64 ²
Sodium	mg/L	6.2	73 ²
Nitrate	mg/L	--	2.0 ¹
Sulfate	mg/L	3.9	--

-- Not analyzed.

¹ Mean of results from Finding Nos. 16 and 17.

² Based on results from a single sample.

Based on these data, the community water supply is moderately hard, but exhibits low salinity. The prevalence of self-regenerating water softeners, which can contribute excess salinity to the WWTF influent, is not known. Although the increase in chloride and sodium is large, the incremental increase in overall salinity (measured as electrical conductivity) appears to be moderate compared to other municipalities in the Central Valley Region.

34. The wastewater treatment plant is at an elevation of approximately 1,380 feet above mean sea level (MSL), and the area around the plant is relatively flat with drainage to the north via Cole Creek. The P/E pond site is on the western slope of Mt. Konocti at an approximate elevation of 1,880 feet MSL and also drains to Cole Creek.
35. The wastewater treatment plant is within the 100-year floodplain of Cole Creek. The 2005 revised Firm Insurance Rate Map for the area indicates that flood depths at the plant may be up to two feet during the 100-year event. Although the wastewater treatment ponds are protected by berms, the RWD states that they may not be high enough in some areas to provide two feet of external freeboard to protect against inundation or washout during flooding. The pond berms will be evaluated and raised as need during the Phase I improvements project to provide full 100-year flood protection.
36. Surrounding land uses are primarily agricultural. According to the County Agricultural Commissioner's office, approximately 50 percent of the agricultural land in the Kelseyville area is planted to vineyards, 30 percent is planted to pears, and four percent is planted to walnuts.
37. Annual precipitation in the vicinity averages approximately 30 inches. The 100-year total annual precipitation is approximately 54 inches. The reference evapotranspiration rate is approximately 49 inches per year.

Groundwater Considerations

38. According to published reports, there are twelve groundwater basins in Lake County. They are composed primarily of shallow alluvial deposits and deposits of the Clear Lake

Volcanics over the fractured basement rock of the Franciscan Formation². Kelseyville is within the Big Valley Basin, which contains 960 known active and abandoned wells. Approximately 472 wells are classified as either domestic or municipal, and 297 are classified as irrigation wells. Most of the wells are 25 to 150 feet deep.

39. Mount Konocti, approximately 3.5 miles east-southeast of the wastewater treatment plant, is a composite volcano with alternating layers of pyroclastic and lava rock. The P/E pond site is on the western flank of Mt. Konocti. According to The Big Valley Groundwater Management Plan³, much of the precipitation that infiltrates into the surface of the mountain escapes through springs around Soda Bay on the east side of the mountain. The spring water is characterized by high boron levels associated with geothermal water within the volcano. Underflow of groundwater from Mt. Konocti to the aquifers of the Big Valley Basin probably also occurs.
40. The primary sources of groundwater recharge in the Big Valley Basin are infiltration from Kelsey Creek and underflow from the Adobe Creek-Manning Creek Subbasin southwest of Kelseyville. Recharge from Mt. Konocti and the Central Upland System west of Kelseyville are believed to be smaller recharge sources.⁴
41. According to the Lake County General Plan Update Final Environmental Impact Report, Groundwater in the Big Valley Basin has lower concentrations of sodium, chloride, and sulfate than the other Lake County Basins. Geothermal influences can cause relatively high levels of iron and boron when groundwater levels are low, typically in the late fall. Boron is reportedly present at moderate levels, and iron, manganese, and/or hardness are problematic in some parts of the basin.
42. There is one dry monitoring well at the P/E pond site. Three groundwater monitoring wells were installed at the wastewater treatment plant in July 2008. Their locations are shown on Attachment B. Soils encountered during drilling were typically four feet of sandy silt underlain by ten feet of silty sand and silty gravelly sand to a depth of thirty feet below ground surface (bgs). The wells were installed to a total depth of 30 feet bgs with 15 feet of screen from 15 to 30 feet bgs. The depth to groundwater was not measured at the time of well construction, but was reportedly shallow. Water from monitoring well MW-3 exhibited significantly higher temperature than the other wells, possibly indicating direct influence from percolating wastewater and/or geothermal influence at that location.
43. Following well development, the three monitoring wells were sampled on 21 October 2008. Static groundwater levels prior to sampling ranged from 4.7 to 11.1 feet bgs, with an east-northeast gradient of approximately 0.014 feet per foot. Based on the October 2008 data, MW-1 is upgradient of the plant and MW-3 is downgradient. MW-2 appears to be cross

² Lake County Water Inventory and Analysis, CDM (in cooperation with the California Department of Water Resources, Northern District), March 2006.

³ Big Valley Groundwater Management Plan, Lake County Flood Control and Water Conservation District, May 1999.

⁴ Bulletin 118, Big Valley Groundwater Basin Description, Department of Water Resources, February 2004.

gradient of the plant. Well survey and groundwater elevation data for October 2008 are summarized below.

Well ID	Reference Elevation ^{1, 2} (feet)	Measured Water Level ³ (feet)	Groundwater Elevation ² (feet)	Groundwater Depth (feet bgs)
MW-1	1366.35	9.3	1357.1	6.1
MW-2	1358.72	7.7	1351.0	4.7
MW-3	1356.70	14.1	1342.6	11.1

¹ Top of well casing elevation.

² 1988 North American Vertical Datum.

³ Below top of well casing.

44. Analytical data for the October 2008 groundwater sampling event are summarized below.

Constituent/Parameter	Units	Analytical Results		
		MW-1	MW-2	MW-3
Total coliform organisms	MPN/100 mL	<1	<1	<1
E. coli	MPN/100 mL	<1	<1	<1
Electrical conductivity ¹	umhos/cm	1170	1167	380
Total dissolved solids	mg/L	580	590	240
Total Kjeldahl nitrogen	mg/L	<1	<1	<1
Nitrate nitrogen	mg/L	<0.20	2.6	0.91
pH ¹	Std.	6.6	7.5	6.8

¹ Field measured during well purging.

Based on these data, it appears that downgradient groundwater quality may be significantly better than upgradient quality. However, because of the prevalence of domestic and irrigation wells in the area, the October 2008 gradient may not be representative of the overall site trend. In addition, one sampling event is not sufficient to determine spatial and temporal trends in groundwater quality, and there are no usable monitoring wells at the P/E pond site. Therefore, there is not sufficient data to determine whether the wastewater treatment plant and/or the P/E ponds have unreasonably degraded the underlying groundwater. It is appropriate to require that the Discharger install monitoring wells designed to monitor groundwater up- and downgradient of the P/E ponds. It is also appropriate, after sufficient data have been collected, to require a formal determination of background groundwater quality and the degree to which degradation has occurred.

Basin Plan, Beneficial Uses, and Water Quality Objectives

45. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.
46. Surface water drainage is to Clear Lake via Cole Creek. The beneficial uses of Clear Lake are municipal and domestic supply (MUN); agricultural supply (AGR); water contact recreation; noncontact water recreation; warm and cold freshwater habitat; warm water spawning, reproduction, and/or early development; and wildlife habitat.
47. The beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, and industrial supply.
48. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objectives for total coliform organisms
49. The Basin Plan's narrative water quality objective for chemical constituents, at a minimum, requires waters designated as domestic or municipal supply to meet the MCLs specified in Title 22. The Basin Plan recognizes that the Regional Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
50. In summary, the narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.
51. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater. The applicability of this objective to groundwater designated as MUN has been affirmed by State Water Board Order No. WQO-2003-0014 and by subsequent decisions of the Sacramento County Superior Court and California Court of Appeal, 3rd Appellate District.
52. The Water Quality Control Plan for the Tulare Lake Basin, Second Edition, contains salt management requirements that have been successfully implemented for several decades. The Tulare Basin Plan establishes several salt management requirements, including:
 - a. The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum EC shall not exceed the EC of the source water plus

500 umhos/cm. When the source water is from more than one source, the EC shall be a weighted average of all sources.

- b. Discharges to areas that may recharge good quality groundwaters shall not exceed an EC of 1,000 umhos/cm, a chloride content of 175 mg/L, or a boron content of 1.0 mg/L.

These effluent limits are considered best practicable treatment or control (BPTC).

- 53. The Basin Plan encourages water recycling where practicable. The Discharger currently recycles less than one percent of its wastewater. However, the Discharger has developed and partially implemented a project that conveys recycled wastewater from other WWTFs in the Clear Lake area to The Geysers Geothermal Project where the water is used to recharge a deep geothermal reservoir that generates electricity. The third phase of this project, which is called the Full Circle project, will include a pipeline that will convey recycled water from the Kelseyville and Lakeport WWTFs to The Geysers. However, funding for the last phase of this public/private partnership has not yet been committed, so this remains part of the Discharger's long-range plans. Additionally, the Discharger has been investigating other recycling opportunities, particularly with local vineyard owners, and is attempting to gain federal funding for the extensive capital improvements needed through an economic stimulus package or similar mechanism.

Antidegradation Analysis

- 54. State Water Resources Control Board Resolution No. 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:
 - a. The degradation is consistent with the maximum benefit to the people of the State;
 - b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
 - c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives; and
 - d. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.
- 55. Degradation of groundwater by some of the typical waste constituents released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of the State. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impact on water quality will be substantially less. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason to accommodate growth and groundwater degradation provided terms of the Basin Plan are met.

56. Constituents of concern that have the potential to degrade groundwater include salts (primarily EC, sodium, and chloride), nutrients and coliform organisms, as discussed below:
- a. The EC of the effluent currently averages approximately 600 umhos/cm. Based on Finding No. 51, this is consistent with the Tulare Lake Basin Plan's established effluent limit of 500 umhos/cm over the source water. This limit was established after a full evaluation of BPTC for discharges in the Tulare Lake Basin. Circumstances and conditions with respect to treatment and control of salinity in the Sacramento-San Joaquin River Basin are similar to those of the Tulare Lake Basin. Therefore, the discharge will likely not impair the beneficial uses of groundwater due to increased salinity. Based on best professional judgment, an incremental increase of 500 umhos/cm over the source is BPTC for this discharge.
 - b. For nutrients such as nitrate, the potential for unreasonable degradation depends not only on the quality of the treated effluent, but the ability of the vadose zone below the effluent storage/disposal ponds to provide an environment conducive to nitrification and denitrification to convert the effluent nitrogen to nitrate and the nitrate to nitrogen gas before it reaches the water table. Although groundwater is quite shallow at the wastewater treatment plant, there is not enough site-specific data to determine the threat.
 - c. For coliform organisms, the potential for exceedance of the Basin Plan's numeric water quality objective depends on the ability of vadose zone soils below the effluent storage/disposal ponds and saturated soils within the shallow water bearing zone to provide adequate filtration. Again, there is not enough site-specific data to determine the threat. However, with regard to the wastewater treatment plant site, it seems likely that a coliform problem would have been evident in the first groundwater sampling event. The fact that total and fecal coliform organisms were not detected after many years of percolation from the unlined treatment and storage ponds indicates that there may be adequate filtration at the wastewater treatment plant site. Although disinfection would reduce the potential threat, the use of sodium hypochlorite would also increase the salinity of the effluent and create trihalomethanes. Therefore, pending completion of the *Background Groundwater Quality Study*, there is no reason to require disinfection at this time.
57. There is not sufficient data at this time to determine whether unreasonable groundwater degradation has, or likely will, result from the discharge. It is the responsibility of the Discharger to provide information for the Regional Water Board to evaluate whether any degradation caused by the discharge is consistent with Resolution No. 68-16. Although this Order allows expansion of the WWTF, the growth rate used for the Phase I design is minimal and the primary purpose of the project is to correct a long-standing capacity deficit rather than to accommodate growth. Sufficient reason exists to accommodate this minimal growth as long as future expansion proposals include appropriate BPTC measures and are accompanied by a complete antidegradation analysis. It is also appropriate to allow some groundwater degradation as long as it is consistent with the Basin Plan and Resolution No. 68-16 because economic prosperity of local communities and associated industry is of

benefit to the people of California. This Order establishes terms and conditions of discharge to ensure that the discharge does not unreasonably affect present and anticipated uses of groundwater and includes groundwater limitations that apply water quality objectives established in the Basin Plan to protect beneficial uses.

Treatment and Control Practices

58. The Discharger currently provides treatment and control of the discharge that incorporates:
- a. Alarm and backup power systems to prevent bypass or overflow;
 - b. Secondary treatment of the wastewater;
 - c. Recycled water use at agronomic rates;
 - d. A Sanitary Sewer Operation, Maintenance, Overflow Prevention and Response Plan;
 - e. An operation and maintenance (O&M) manual; and
 - f. Certified operators to ensure proper operation and maintenance.

59. When the Phase I improvements project is complete, the facility will provide the following additional treatment and control measures:
- a. Improved treatment reliability; and
 - b. A geosynthetic liner for the new wastewater treatment pond system⁵ to protect groundwater quality.

However, the effluent storage ponds and P/E ponds do not incorporate any specific measures to reduce the potential for groundwater degradation.

60. As noted above, it is not clear whether the wastewater treatment plant and P/E ponds pose a significant threat to groundwater quality, and the level of degradation that complies with Resolution No. 68-16 has not been fully evaluated. Therefore, it is appropriate for this Order to establish a schedule for tasks to formally evaluate groundwater quality, and to develop and begin to implement a salinity reduction program and evaluate additional BPTC measures if unreasonable groundwater degradation has, or will, occur. Completion of these tasks, and implementation of the approved strategies developed from that work, will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved.
61. This Order establishes effluent and groundwater limitations for the WWTF that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

⁵ Excluding those ponds at the wastewater treatment plant site that will be converted to effluent storage ponds.

Other Regulatory Considerations

62. The State Water Board adopted Order No. 97-03-DWQ (NPDES General Permit No. CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The wastewater treatment facility has a design capacity of less than 1.0 mgd and does not have a pretreatment program, and is therefore not required to obtain coverage under NPDES General Permit No. CAS000001.
63. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems General Order No. 2006-0003-DWQ (General Order). The General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with the Order. The Discharger's collection system exceeds one mile in length, and therefore the General Order is applicable. The Discharger has filed a Notice of Intent (NOI) for coverage under the General Order with the State Water Resources Control Board.
64. Section 13267(b) of the California Water Code provides that: *"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports"*.

The technical reports required by this Order and the attached "Monitoring and Reporting Program No. ____" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

65. California Code of Regulations (CCR), Title 23, section 2232 states: *"(a) Whenever a regional board finds that a publicly owned wastewater treatment plant will reach capacity within four years, the board shall notify the discharger. Such notification shall inform the discharger that the regional board will consider adopting a time schedule order pursuant to Section 13300 of the Water Code or other enforcement order unless the discharger can demonstrate that adequate steps are being taken to address the capacity problem. The notification shall require the discharger to submit a technical report to the regional board within 120 days showing how flow volumes will be prevented from exceeding existing capacity or how capacity will be increased."*

Based on the above Findings, the Kelseyville WWTF may reach capacity within four years after completion of the Phase I improvements. Therefore, it is appropriate to require that the Discharger estimate when flows will reach the hydraulic and/or treatment capacities of the WWTF each year in accordance with Condition E.4 of the Standard Provisions and Reporting Requirements for Waste Discharge Requirements, which is also incorporated into the Provisions of this Order.

66. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the State or county pursuant to CWC Section 13801, apply to all monitoring wells.
67. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with Title 14 CCR, Section 15301.
68. An Initial Study and Mitigated Negative Declaration were approved by the Lake County Planning Commission on 23 February 2006 and by the Lake County Board of Supervisors on 14 March 2006 in accordance with the California Environmental Quality Act (CCR, Title 14, Section 15261 et. seq.). The Initial Study describes the project under review as WWTF upgrades within the existing facility and easement footprints as follows:
 - a. Conversion of the existing facultative lagoon treatment system to dual-powered multi-cellular aerated lagoons system with a new electrical switchgear building.
 - b. Conversion of the remaining treatment ponds to an effluent equalization reservoir system.
 - c. Replacement of the influent collection box with a new headworks and screen.
 - d. Upgrading the existing chlorine storage, feed, and contact system.
 - e. Replacement of the existing effluent pump station
 - f. Construction of approximately 13,000 feet of new effluent pipeline within the easement of the existing pipeline.
 - g. Construction of groundwater monitoring wells at the P/E pond site.
69. The following mitigation measures to protect water quality were included as conditions of project approval:

Impact Type	Mitigation Required
a. To minimize and mitigate impacts to wetlands and riparian habitats during construction of the effluent pipeline:	i. Complete a preliminary non-formal delineation of wetlands and other waters of the U.S. ii. Avoid filling wetlands, riparian habitats, or other waters of the U.S. by relocating the pipeline. iii. Where avoidance is not feasible, obtain and comply with all necessary permits. v. Construct and maintain adequate erosion control devices.
b. To prevent impacts to vernal pools during construction of the effluent pipeline:	i. Complete a formal delineation of vernal pools. ii. Provide at least a 100-foot buffer zone between the construction zone and any vernal pool. iii. Comply with permit requirements.
c. To prevent impacts to wetlands and riparian habitats vernal pools if tunneling is used as an avoidance measure during construction of the effluent pipeline:	i. Complete preconstruction surveys at the tunneling entrances and exits to verify the absence of those features. ii. Development of an emergency response plan for incidents of drilling mud seepage.
d. To prevent impacts to storm water runoff quality:	i. Obtain an NPDES permit for discharges of storm water associated with construction activity. ii. Develop and implement a Storm Water Pollution Prevention Plan.

70. Implementation of the specific mitigation measures set forth in the Mitigated Negative Declaration and compliance with these waste discharge requirements will mitigate or avoid significant impacts to water quality.
71. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 CFR 503, *Standard for the Use or Disposal of Sewage Sludge*, which establishes management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria.
72. The Regional Water Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Regional Water Board is not the implementing agency for

40 CFR 503 regulations. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to the EPA.

73. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the wastewater treatment facility is exempt from Title 27, the data analysis methods of Title 27 are appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.
74. The discharge authorized herein and the treatment and storage facilities associated with the discharge, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), Section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Section 20090(a) of Title 27, is based on the following:
- a. The waste consists primarily of domestic sewage and treated effluent;
 - b. The waste discharge requirements are consistent with water quality objectives; and
 - c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.
75. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

76. All of the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
77. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
78. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that, pursuant to Sections 13263 and 13267 of the California Water Code, Order No. 99-094 is rescinded and Lake County Sanitation District, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.
3. Discharge of waste classified as 'hazardous' under Section 2521, Chapter 15 of Title 23 or 'designated', as defined in Section 13173 of the California Water Code is prohibited.
4. Bypass or overflow of untreated or partially treated waste is prohibited.
5. Discharge of treated effluent to any site other than the P/E ponds described in the Findings is prohibited except as allowed under WDRs Order No. 99-070 or subsequent revisions thereto.
6. Application of recycled water in a manner or location other than that described herein and regulated under WDRs Order No. 99-070 is prohibited.
7. The use of recycled water for purposes other than vineyard irrigation as defined in Title 22 CCR Section 60304(a) and this Order is prohibited.

B. Discharge Specifications

1. **Effective immediately**, influent flows to the WWTF shall not exceed the following limits for any calendar year:

Influent Flow Measurement	Maximum Rate
Total Annual Flow	107 MG
Average Daily Flow ¹	0.29 mgd
Average Dry Weather Flow ^{2, 3}	0.21 mgd
Peak Month Flow ⁴	0.47 mgd

¹ As determined by the total influent for the calendar year divided by 365.

² Dry weather is defined as the months of August through October, inclusive.

³ As determined by the total influent flow for the dry weather period divided by 92.

⁴ As determined by the total influent flow for the peak flow month divided by the number of days in that month.

2. **Effective upon the Executive Officer's written approval** of the report required pursuant to Provision F.1.b, influent flows to the WWTF shall not exceed the following limits for any calendar year:

Influent Flow Measurement	Maximum Rate
Total Annual Flow	112 MG
Average Daily Flow ¹	0.31 mgd
Average Dry Weather Flow ^{2, 3}	0.22 mgd
Peak Month Flow ⁴	0.48 mgd

¹ As determined by the total influent for the calendar year divided by 365.

² Dry weather is defined as the months of August through October, inclusive.

³ As determined by the total influent flow for the dry weather period divided by 92.

⁴ As determined by the total influent flow for the peak flow month divided by the number of days in that month.

3. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.
4. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Section 13050 of the California Water Code (CWC).
5. The Discharger shall operate all systems and equipment to optimize the quality of the treated effluent.
6. Public contact with wastewater shall be precluded or controlled through such means as fences and signs, or acceptable alternatives.
7. Objectionable odors originating at the facility shall not be perceivable beyond the limits of the wastewater treatment, storage or P/E ponds at an intensity that creates or threatens to create nuisance conditions.
8. As a means of discerning compliance with Discharge Specification B.7, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Regional Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.
9. Wastewater ponds shall be managed to prevent breeding of mosquitoes. In particular,
 - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

10. All treatment, storage, and disposal facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
11. The WWTF shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the winter months. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
12. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment levees and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond permanent staff gauges with calibration marks that indicate the water level at design capacity and enable determination of available operational freeboard.
13. On or about **15 October** of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications B.11 and B.12.

C. Effluent Limitations

1. Effluent discharged to the P/E ponds shall not exceed the following limits:

Constituent	Units	Annual Average	Monthly Average	Daily Maximum
BOD ₅	mg/L	--	40	80
TSS	mg/L	--	40	80
Electrical Conductivity	umhos/cm	Water supply + 500	--	--

¹ 5-day biochemical oxygen demand.

² Total Suspended Solids.

2. No wastewater contained in any pond shall have a pH less than 6.5 or greater than 10.0.

D. General Solids Disposal Specifications

Sludge, as used in this document, means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge

means sludge that will not be subject to further treatment at the WWTF. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, and clarifiers as needed to ensure optimal plant operation.
2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property, and shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.
3. Any storage of residual sludge, solid waste, and biosolids at the WWTF shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.
4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at disposal sites (i.e., landfills, WWTFs, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.
5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board. In most cases, this will mean the General Biosolids Order (State Water Resources Control Board Water Quality Order No. 2000-10-DWQ, *General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*). For a biosolids use project to be covered by the General Biosolids Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.
6. Use and disposal of biosolids shall comply with the self-implementing federal regulations of Title 40, Code of Federal Regulations (CFR), Part 503, which are subject to enforcement by the U.S. EPA, not the Regional Water Board. If during the life of this Order, the State accepts primacy for implementation of 40 CFR 503, then the Regional Water Board may also initiate enforcement where appropriate.

E. Groundwater Limitations

1. Release of waste constituents from any wastewater treatment or storage system component associated with the wastewater treatment facility shall not cause or contribute to groundwater:
 - a. Containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater:

Constituent	Units	Minimum Value	Maximum Value
Nitrate nitrogen	mg/L	--	10
pH	Std.	6.5	8.4
Total coliform organisms	MPN/100 mL	--	2.2
Title 22 ¹	As specified	--	MCL

¹ Includes all constituents listed in 22 CCR for which primary or secondary MCLs have been promulgated.

- b. Containing taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

F. Provisions

1. The following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described in Provision F.5:
 - a. By **30 October 2009**, the Discharger shall submit a technical report that presents the percolation rate test methodology, the 2008 percolation test results for each P/E pond (baseline results), and the results of post-scarification percolation testing completed in 2009. Based on the baseline and post-scarification results and consideration of reasonably achievable pond maintenance techniques and frequencies, the report shall define the long-term sustainable percolation for each P/E pond and the specific operation and maintenance requirements and schedule necessary to sustain that rate.
 - b. By **30 December 2009**, the Discharger shall submit a *Groundwater Monitoring Well Installation Workplan* prepared in accordance with, and including the items listed in, the first section of Attachment E: "*Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports.*" The workplan shall describe installation of at least three new groundwater monitoring wells designed to ensure that background water quality is adequately characterized and any potential water quality impacts from the P/E pond discharge are detected. The system shall be designed to yield samples representative of the uppermost portion of the first aquifer underlying the P/E ponds. If additional monitoring wells are needed at the wastewater plant to ensure adequate monitoring upgradient and downgradient of the unlined ponds, the workplan shall include those additional wells.

If the registered professional responsible for development of the workplan believes that monitoring groundwater quality at the P/E pond site is infeasible or would be fruitless based on review of published local geology/hydrogeology reports, the workplan shall:

- i. List the references reviewed;

- ii. Summarize the relevant findings of those reports;
 - iii. State the specific reasons that monitoring would be infeasible or fruitless; and
 - iv. Consider whether other forms of monitoring would be feasible and useful (e.g., wells designed to monitor at the soil/bedrock interface).
 - c. By **30 May 2010**, the Discharger shall submit a technical report that certifies completion of the Phase I improvements construction work, certifies that operation of the new treatment and effluent pumping system has begun, and transmits a copy of the Final Operation and Maintenance Manual submitted to the State Water Board Division of Financial Assistance. The report shall include as-built drawings of the treatment pond and pond liner systems and a revised water balance that demonstrates the wastewater storage and disposal capacity of the WWTF.
 - d. If additional groundwater monitoring wells are required pursuant to the approved workplan, by **30 August 2010**, the Discharger shall submit a *Monitoring Well Installation Report* prepared in accordance with, and including the items listed in, the second section of Attachment E: "*Monitoring Well Workplan and Monitoring Well Installation Report Guidance*." The report shall describe the installation and development of all new monitoring wells, and explain any deviation from the approved workplan.
 - e. By **30 January 2012**, the Discharger shall submit a *Background Groundwater Quality Study Report*. The report shall present a summary of all historical monitoring data for each groundwater monitoring parameter/constituent identified in the MRP and calculation of the background groundwater concentration for electrical conductivity, total dissolved solids, nitrate nitrogen, total coliform organisms, sodium, chloride, iron, manganese and boron. Determination of background quality shall be made using the methods described in Title 27 CCR, Section 20415(e)(10), and shall be based on data from at least six quarterly (or more frequent) groundwater monitoring events. The report shall compare the calculated background concentration with the concentration in each downgradient well.
2. If the *Background Groundwater Quality Study* shows that the discharge of waste is causing groundwater to contain salinity constituents (i.e., electrical conductivity, total dissolved solids, sodium and chloride) in concentrations statistically greater than background water quality then, within **180 days** of the request of the Executive Officer, the Discharger shall submit and implement a *Salinity Evaluation and Minimization Plan* to address the sources of salinity discharged to the wastewater treatment system. At a minimum, the plan shall meet the following requirements outlined in CWC Section 13263.3(d)(3) Pollution Prevention Plans:
- a. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of salinity in the treatment plant influent including

water supply, water softeners, and other residential, commercial and industrial salinity sources.

- b. An analysis of the methods that could be used to prevent the discharge of salinity into the facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the facility. The analysis shall also identify sources, or potential sources, not within the ability or authority of the Discharger to control.
- c. An estimate of salinity load reductions that may be identified through the methods identified in CWC Section 13263.3(d)(3)(ii).
- d. A plan for monitoring the results of the salinity pollution prevention program.
- e. A description of the tasks, costs, and time required to investigate and implement various elements in the salinity pollution prevention plan.
- f. A statement of the Discharger's salinity pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Dischargers intended pollution prevention activities for the immediate future.
- g. A description of the Discharger's existing salinity pollution prevention programs.
- h. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.
- i. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.
- j. Progress to date in reducing the concentration and/or mass of salinity in the discharge.

If this report is required, progress in implementation of the plan shall be reported each year in the Annual Monitoring Report required pursuant to Monitoring and Reporting Program No. ____.

- 3. If the *Background Groundwater Quality Study* shows that the discharge of waste is causing groundwater to contain waste constituents (other than electrical conductivity, total dissolved solids, sodium and chloride) in concentrations statistically greater than background water quality then, within **180 days** of the request of the Executive Officer, the Discharger shall submit a *BPTC Evaluation Workplan* that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control. The workplan shall contain a preliminary evaluation of each component of the WWTF and effluent disposal system and propose a time schedule for completing the comprehensive technical evaluation. The

4. **At least 180 days prior** to any sludge removal and disposal, the Discharger shall submit a *Sludge Cleanout Plan*. The plan shall include a detailed plan for sludge removal, drying, and disposal. The plan shall specifically describe the phasing of the project, measures to be used to control runoff or percolate from the sludge as it is drying, and a schedule that shows how all dried biosolids will be removed from the site prior to the onset of the rainy season (1 October).
5. The Discharger shall continue to evaluate and correct I/I as proposed in the August 2005 *Kelseyville Wastewater Collection System I/I Analysis Report* or approved revision thereto.
6. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Regional Water Board by **31 January**.
7. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with Sections 415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
8. The Discharger shall comply with the Monitoring and Reporting Program No. ____, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
9. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
10. The Discharger shall submit to the Regional Water Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharge shall state the reasons for such

noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board in writing when it returns to compliance with the time schedule.

11. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.
12. The Discharger shall provide certified wastewater treatment plant operators in accordance with Title 23 of the California Code of Regulations, Division 3, Chapter 26.
13. As described in the Standard Provisions, the Discharger shall report promptly to the Regional Water Board any material change or proposed change in the character, location, or volume of the discharge.
14. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
15. The Discharger shall comply with the requirements of the Statewide General Waste Discharge Requirements (General WDRs) for Sanitary Sewer Systems (Water Quality Order No. 2006-0003), the Revised General WDRs Monitoring and Reporting Program (Water Quality Order No. 2008-0002-EXEC), and any subsequent revisions thereto. Upon the reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer overflow, the Discharger shall notify the Regional Water Board in accordance with Water Quality Order No. 2008-0002-EXEC and take any necessary remedial action to (a) control or limit the volume of sewage discharged, (b) terminate the sewage discharge as rapidly as possible, and (c) recover as much as possible of the sewage discharged (including wash down water) for proper disposal. The Discharger shall implement all applicable remedial actions including, but not limited to, the following:
 - a. Interception and rerouting of sewage flows around the sewage line failure;
 - b. Vacuum truck recovery of sanitary sewer overflows and wash down water;
 - c. Use of portable aerators where complete recovery of the sanitary sewer overflows are not practicable and where severe oxygen depletion is expected in surface waters; and
 - d. Cleanup of sewage-related debris at the overflow site.
16. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

17. In the event of any change in control or ownership of the WWTF, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
18. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.
19. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
20. The Regional Water Board will review this Order periodically and will revise requirements when necessary.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on ____.

PAMELA C. CREEDON, Executive Officer